

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method, comprising:

preprocessing a video image from a video camera to separate one or more objects to be

tracked from the rest of the video image and compute statistics for the one or more

objects to be tracked and the rest of the video image, wherein said preprocessing

includes

computing color statistics for said one or more objects to be tracked,

removing said one or more objects to be tracked from a background of the

video image, wherein said removing includes

selecting one object of the one or more objects to be tracked,

selecting a pixel within the selected object,

identifying the selected pixel as a pixel belonging to the

selected object if the difference between hue of the

pixel and mean hue of the selected object is within an

allowable range for hue, the difference between

saturation of the pixel and mean saturation of the

selected object is within an allowable range for

saturation, and the horizontal and vertical distances of

the pixel from the center of the selected object are

within an allowable range for distance, and

identifying a pixel as belonging to the background of the video

image if the difference between hue of the pixel and the

mean hue of the selected object is not within said

allowable range for hue, the difference between

saturation of the pixel and the mean saturation of the
object selected is not within said allowable range for
saturation, and the horizontal and vertical distances of
the pixel from the center of the selected object are not
within said allowable range for distance, and
computing color statistics for said background of the video image;
generating a quality measure based on the statistics for the one or more objects to be tracked
and the rest of the video image that indicates the suitability of the video image for use
by an object tracking system; and
tuning said video camera to increase said quality measure beyond a threshold.

2. (Cancelled)
3. (Currently Amended) The method of claim 2, 1, wherein said computing color statistics for said one or more objects to be tracked comprises:
identifying the objects to be tracked; and
calculating mean and variance values for the hue and saturation of the one or more objects to be tracked.
4. (Original) The method of claim 3, wherein said identifying comprises aligning the at least one or more objects to be tracked with one or more rectangles projected onto the video image.
5. (Cancelled)

6. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for hue is ten times the square root of hue variance.
7. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for saturation is ten times the square root of saturation variance.
8. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for distance is ten percent of the maximum width or height.
9. (Currently Amended) The method of claim ~~2~~, 1, wherein said computing color statistics for said background of the video image comprises:
calculating a mean value for hue of the background; and
calculating a mean value for saturation of the background.
10. (Original) The method of claim 1, wherein said generating a quality measure comprises:
maximizing the saturation of each of the one or more objects to be tracked;
minimizing the saturation of the background of the video image;
maximizing the hue difference between the one or more objects to be tracked; and
maximizing the average hue difference between the one or more objects to be tracked and the
background of the video image.
11. (Currently Amended) A system, comprising:
a storage device having stored therein one or more routines for determining the suitability of
a video image for use by an object tracking system; and

a processor coupled to the storage device that when executing the one or more routines[[:]] preprocesses a video image from a video camera to separate one or more objects to be tracked from the rest of the video image and compute statistics for the one or more objects to be tracked and the rest of the video image, wherein preprocessing includes computing color statistics for said one or more objects to be tracked, removing said one or more objects to be tracked from a background of the video image, wherein removing includes selecting one object of the one or more objects to be tracked, selecting a pixel within the selected object, identifying the selected pixel as a pixel belonging to the selected object if the difference between hue of the pixel and mean hue of the selected object is within an allowable range for hue, the difference between saturation of the pixel and mean saturation of the selected object is within an allowable range for saturation, and the horizontal and vertical distances of the pixel from the center of the selected object are within an allowable range for distance, and identifying a pixel as belonging to the background of the video image if the difference between hue of the pixel and the mean hue of the selected object is not within said allowable range for hue, the difference between saturation of the pixel and the mean saturation of the object selected is not within said allowable range for saturation, and the horizontal and vertical distances of the pixel from the center of the selected object are not within said allowable range for distance, and computing color statistics for said background of the video image;

generates a quality measure based on the statistics for the one or more objects to be tracked
and the rest of the video image that indicates the suitability of the video image for use
by an object tracking system; and
tunes said video camera to increase said quality measure beyond a threshold.

12. (Original)

13. (Currently Amended) The system of claim ~~12~~, 11, wherein said computing color statistics for
said one or more objects to be tracked comprises:
identifying the objects to be tracked; and
calculating mean and variance values for the hue and saturation of the one or more objects to
be tracked.

14. (Original) The system of claim 13, wherein said identifying comprises aligning the at least
one or more objects to be tracked with one or more rectangles projected onto the video
image.

15. (Cancelled)

16. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for hue is ten
times the square root of hue variance.

17. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for
saturation is ten times the square root of saturation variance.

18. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for distance
is ten percent of the maximum width or height.

19. (Currently Amended) The system of claim ~~12~~, 11, wherein said computing color statistics for said background of the video image comprises:
- calculating a mean value for hue of the background; and
 - calculating a mean value for saturation of the background.
20. (Original) The system of claim 11, wherein said generating a quality measure comprises:
- maximizing the saturation of each of the one or more objects to be tracked;
 - minimizing the saturation of the background of the video image;
 - maximizing the hue difference between the one or more objects to be tracked; and
 - maximizing the average hue difference between the one or more objects to be tracked and the background of the video image.

21. (Currently Amended) A machine-readable medium having stored thereon data representing ~~sequences-sets~~ of instructions, ~~said sequences of instructions~~ which, when executed by a ~~processor machine~~, cause said ~~processor machine~~ to:
- preprocess a video image from a video camera to separate one or more objects to be tracked from the rest of the video image and compute statistics for the one or more objects to be tracked and the rest of the video image, wherein processing includes
computing color statistics for said one or more objects to be tracked,
removing said one or more objects to be tracked from a background of the video
image, wherein removing includes
selecting one object of the one or more objects to be tracked,
selecting a pixel within the selected object,
identifying the selected pixel as a pixel belonging to the selected object if the
difference between hue of the pixel and mean hue of the selected
object is within an allowable range for hue, the difference between
saturation of the pixel and mean saturation of the selected object is
within an allowable range for saturation, and the horizontal and
vertical distances of the pixel from the center of the selected object are
within an allowable range for distance, and
identifying a pixel as belonging to the background of the video image if the
difference between hue of the pixel and the mean hue of the selected object is
not within said allowable range for hue, the difference between saturation of
the pixel and the mean saturation of the object selected is not within said
allowable range for saturation, and the horizontal and vertical distances of the

pixel from the center of the selected object are not within said allowable range
for distance, and
computing color statistics for said background of the video image;
generate a quality measure based on the statistics for the one or more objects to be tracked
and the rest of the video image that indicates the suitability of the video image for use
by an object tracking system; and
tune said video camera to increase said quality measure beyond a threshold.

22. (Cancelled)

23. (Currently Amended) The machine-readable medium of claim ~~22~~, 21, wherein said computing color statistics for said one or more objects to be tracked comprises:
- identifying the objects to be tracked; and
- calculating mean and variance values for the hue and saturation of the one or more objects to be tracked.
24. (Original) The machine-readable medium of claim 23, wherein said identifying comprises aligning the at least one or more objects to be tracked with one or more rectangles projected onto the video image.
25. (Cancelled)
26. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for hue is ten times the square root of hue variance.
27. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for saturation is ten times the square root of saturation variance.
28. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for distance is ten percent of the maximum width or height.

29. (Currently Amended) The machine-readable medium of claim ~~22~~, 21, wherein said computing color statistics for said background of the video image comprises:
calculating a mean value for hue of the background; and
calculating a mean value for saturation of the background.
30. (Original) The machine-readable medium of claim 21, wherein said generating a quality measure comprises:
maximizing the saturation of each of the one or more objects to be tracked;
minimizing the saturation of the background of the video image;
maximizing the hue difference between the one or more objects to be tracked; and
maximizing the average hue difference between the one or more objects to be tracked and the background of the video image.